Now the contrary of all this is to be found in the Mexican *A. tropidonotus*, which has the toes *distinctly dilated, never a white stripe on the side, no larger occipital shield*, and the hinder limbs longer, reaching beyond the head or to the nasal aperture (*not ear-opening*, as Mr. O'Shaughnessy *thinks*).

Of course, by *supposing*, as Mr. O'Shaughnessy does suppose, that Duméril and Bibron's description of the length of the limbs is incorrect, and their (with regard to the details) very excellent figure erroneous (composed of two different species), and by *suppressing*, as Mr. O'Shaughnessy does suppress, Daudin and Duméril's notice about the characteristic white lateral marking, it will be easy to transmute also every other species of *Anolis* into a *Norops auratus*.

It is well known that the length of the tail in slender-tailed lizards varies very much according to the individuals, which, besides, do not always arrive in a perfectly natural state, and that it therefore is not to be considered a very important character for distinguishing species. I have to add that I have lately examined specimens of *A. auratus*, Daudin, which had an imperfect or perfect *second* series of large scales between the supralabials and the eye; but this second series is not constant, and consists of narrower scales between the supralabials and the constant scales of the upper row. The dilatation of the toes in *A. auratus* is not absent, but hardly visible.

Finally, I have to remark that I have examined the type specimens of *Norops auratus*, Dum. & Bibr., at Paris, others at Leyden, the *Norops auratus*, Wagler, at Munich, and the *Anolis* 12-*striatus*, Berthold, at Göttingen, all of which belong to the same species, found only in the northern parts of South America.

XXXV.—*On* Norops auratus.

By Arthur W. E. O'Shaughnessy.

Prof. Peters has kindly communicated the above to me before sending it for insertion.

As he calls in question my *carefulness*, in endeavouring to refute the view I put forward in the March Number of the 'Annals' of the present year, respecting the species of *Norops*, I would ask permission to say a few words in reply to him. Daudin's description must, as I said before, be regarded as of generic rather than specific value; it is his merit to have distinguished a *Norops* from an *Anolis* by means of that character of "doigts amincis" which Prof. Peters quotes above. As to the toes being "entièrement amincis," it is clear that,

in the words of Dr. Hallowell, one species (*N. auratus*) has the toes "dilated, although not to the same extent as in many species of *Anolis*," while in the other species (his *macrodactylus*, which is the 12-*striatus*) they are "totally destitute of such dilatation." Daudin, however, gives no description of other characters sufficient to establish one or other of the species; the coloration which he describes might be that of 12-*striatus*, were it not for the two different descriptions of coloration given by Duméril and Bibron in their more elaborate account of *Norops auratus*. In their *résumé* of the characters of that species I read, "Corps d'un brun fauve doré, avec ou sans bande d'une teinte plus claire sur le dos," with no mention whatever of a white stripe; and in their coloured figure there is only a partial one from the ear to the shoulder, whereas the dark purplish stripe which I have mentioned as occurring in *auratus* extends unaccompanied the whole length of the side. It was the subsequent statement about a white lateral stripe in one of the specimens, together with the length given to the hind legs, which led me to presume that one of their specimens might have been a *N.* 12-*striatus*. As, however, in all other respects their description differs from that of *N.* 12-*striatus*, justifying Dr. Berthold's subsequent separation of that species, and as it is the first satisfactory scientific description of *N. auratus*, I think it but natural to take it as the basis of all argument relative to that species.

Since Duméril and Bibron have given two descriptions of the coloration, I have, of course, as much right to choose the one in support of my view as Prof. Peters has to choose the other. My "supposition" of the identity of his *Anolis tropidonotus* with the species of Duméril and Bibron does not, however, rest merely or even chiefly on the matter of the coloration, but on the fact of the agreement of the two in *all* the important characters which are more properly structural, save the one above mentioned. With regard to *this*, I need only quote Dr. Berthold's express statement that the hind limbs in *N. auratus* of Daudin, Wagler, and Duméril and Bibron "reach to the mouth, the fore limbs even beyond;" and I may state, besides, that in a specimen of that species which I have just examined both pairs of limbs reach beyond the head (as in *tropidonotus*). What can be plainer than these words of Prof. Peters,—"*Two* longitudinal rows of keeled scales between the supralabials and the eye" (in *tropidonotus*)? or than these of Duméril and Bibron,—"Il existe un *double rang* de grandes écailles carénées au-dessus de la série des plaques labiales supérieures"?

Curiously enough, in the latter part of his note, Prof. Peters

furnishes me with yet further confirmation by stating that he has lately observed a *second* "imperfect or perfect series of larger scales between the supralabials and the eye" in *A. auratus*.

Then, again, he expressly says that the tail in his species is even shorter than it is described to be by Duméril and Bibron.

Also "the expansion of the toes is more developed." We have already seen how explicit Dr. Hallowell has been on this point; and he states, what is important, that his specimen of *N. auratus* was received from the Garden of Plants, at Paris. Prof. Peters himself has confessed that his species is probably the same as this one mentioned by Dr. Hallowell, and that it was determined as *N. auratus* from a comparison with specimens in the Paris Museum. In the specimen of *N. auratus* which I am now examining, the occipital plate is very small, much smaller than the surrounding scales, just as it is said to be in *A. tropidonotus*. Duméril and Bibron say the scales "qui occupent . . . l'occiput offrent un peu moins de longueur," but do not mention a large occipital plate.

When the specimen is not obviously immature, and the tail not damaged in any way, its comparative length should at least not be overlooked, as all the descriptions, including that of Prof. Peters, make it a particular point.

Now *N.* 12-*striatus* is a slenderer lizard, with head more depressed and pointed, the scales of the *muzzle only* keeled, those of the rest of the head being smooth (the head is entirely covered with keeled scales in *auratus*; see D. & B.); tail thrice the length of the body; toes not dilated, much shorter limbs, and only one series of scales between the supralabials and the eye. And if these differences are not to be held sufficient in Dr. Berthold's hands to establish his species, what, I would ask, is there in Prof. Peters's description of *tropidonotus* to warrant him in separating that form from *N. auratus*? Consequently, unless Prof. Peters prefers to take the mere colour-description of Daudin, and set aside altogether that of Duméril and Bibron, he cannot successfully maintain that his *A. tropidonotus* is different from *Norops auratus*, or that the 12-*striatus* of Berthold is identical with it. But if he considers Daudin's description sufficient to characterize one or other of the species, and would insist upon the species so characterized being the same as that of Duméril and Bibron, then, more than ever, is his *Anolis tropidonotus* a *Norops auratus*, since all the other characters enumerated by those writers must be attributed to the species of Daudin.

Although I have not observed any trace of a white stripe in *Norops auratus*, yet there may perhaps sometimes be a

partial one, as represented in the coloured figure which shows the black or purplish stripe of that species.

As I stated before, Dr. Hallowell says that his specimen of *N. auratus* (the one received from Paris) was from Mexico. I would add that I have lately had an opportunity of examining two more specimens of *Norops duodecimstriatus*, and that they agree well with Dr. Berthold's description.

BIBLIOGRAPHICAL NOTICES.

A History of British Hydroid Zoophytes. By Thomas Hincks, B.A. 2 vols. Van Voorst, 1869.

We regret that circumstances have prevented our before noticing this valuable work, which has now been out some months. It is a long looked-for addition to our zoological literature, and it comes to us as a welcome guest. Mr. Hincks has for many years laboured patiently and assiduously in the study of that order of animals formerly associated with organisms belonging to wholly different types, under the general term Zoophytes, but now considered to constitute one of three orders included in the class Hydrozoa of Huxley, and known as Hydroida. A work upon this subject was very greatly needed. Two classes of the animals embraced in Johnston's 'Zoophytes' had already been ably handled in more recent publications—the Polyzoa by Mr. Busk*, and the Actinozoa by Mr. Gosse†. Meanwhile, however, the class Hydrozoa has remained untreated of. Wonderful strides were being made in our knowledge of the affinities, structure, and marvellous life-history of its members. The discovery of the so-called "alternation of generations," of the sexual differentiation of many species, and of the peculiarities and diversity in the mode of reproduction and evolution of the several families and genera, have thrown over the study and investigation of this order of animals a flood of interest which is perhaps scarcely equalled, and certainly not surpassed, in any other group of the animal kingdom. During the last twenty years a host of able naturalists have been adding their contributions to the common store of knowledge of these animals. Sars, Ehrenberg, Krohn, Agassiz (father and son), Lovén, Huxley, Alder, Hincks, Van Beneden, Allman, Kölliker, Steenstrup, Dujardin, Gegenbaur, Leuckart, Strethill Wright, Clark, Greene, Claparède, &c. have been among the most active investigators who, in all parts of the world, have been patiently working out those detailed facts upon which alone the generalizations of a true systematic arrangement can be based.

'The History of British Hydroid Zoophytes' opens with an In-

* Catalogue of the Marine Polyzoa in the Collection of the British Museum. By George Busk, F.R.S. 1852–54.

† A History of the British Sea-Anemones and Corals. By P. H. Gosse, F.R.S. Van Voorst, 1860.